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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/528,608

03/21/2005

Doron Nevo

55219-00008USPX

4042

30223

7590

12/05/2006

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EXAMINER

LEE, JOHN D

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 12/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/528,608

Applicant(s)

NEVO ET AL.

Examiner

John D. Lee

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-21 is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

Applicant's amendment, including a new abstract, was submitted via a certificate-of-mailing dated September 5, 2006. This Office action is responsive to the amendment. The Examiner who was previously assigned to this application is no longer employed at the U.S. Patent & Trademark Office. An updated search by the newly assigned Examiner has resulted in the discovery of previously uncited, but pertinent, prior art references. Accordingly, new rejections are set forth below. The previously applied rejection based upon the Lawrence reference is withdrawn. This action is **not** made final.

Claim 15 is objected to because of the following minor informality: in the eleventh line of this claim, it is believed that "third longitudinal axis" should actually be "fourth longitudinal axis". Appropriate correction is required.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-6 are rejected under 35 U.S.C. § 102(b) as being clearly anticipated by U.S. Patent 4,334,321 to Edelman. Edelman discloses an optical actuator comprising an outer containing member (generally indicated as 10) having a cavity with a longitudinal axis, the cavity containing light-absorbing and expanding optical fibers 17,19 which thermally expand in response to light, and thereby cause displacement of

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an acoustical diaphragm to a displacement distance in the direction of the longitudinal axis. The light-absorbing and expanding optical fibers are preferably formed from polymers (column 2, lines 32-33). It can be seen in Edelman that the outer containing member **10** is a dielectric material, thus meeting applicant's claim 5 limitation "dielectric material such as glass". The light absorption and thermal expansion of the fibers **17**, **19**, and thus the displacement distance, is proportional to the power of the light therein.

Claims 1-3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 4,334,321 to Edelman. The Edelman optical actuator was described in the immediately preceding paragraph. Edelman does not disclose that the cavity is an internal partially absorbing and partially reflecting cavity. The dielectric material used, however, would likely meet this criteria. Unless highly polished and completely unblemished, and unless the index of refraction is less than that of the material within the cavity, any material forming the cavity walls will be "partially" reflective. Similarly, unless a material designed to be absorptive is a perfect blackbody material, it will only be "partially" absorptive. It would thus have been obvious to the person of ordinary skill in the art to conclude that the walls of the internal cavity of Edelman are partially absorbing and partially reflecting. Regarding applicant's claim 3, it can clearly be seen that the Edelman cavity is a closed cavity.

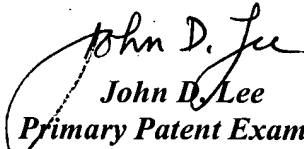
Claims 7-21 are allowable over the prior art of record. The plural parallel cavity arrangements set forth in these claims are neither disclosed nor suggested by Edelman or any other prior art of record.

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 5,152,748 to Chastagner shows an optical actuator comprising an outer containing member having a cavity with a longitudinal axis, the cavity containing light-absorbing and expanding elements which thermally expand in response to absorbed light carried thereto by optical fibers, the elements thereby causing displacement of the actuator.

Applicant's arguments with respect to claims 1 and 3, and the rejection thereof, have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning the merits of this communication should be directed to Examiner John D. Lee at telephone number (571) 272-2351. The Examiner's normal work schedule is Tuesday through Friday, 6:30 AM to 5:00 PM. Any inquiry of a general or clerical nature (i.e. a request for a missing form or paper, etc.) should be directed to the Technology Center 2800 receptionist at telephone number (571) 272-1562, to the technical support staff supervisor (Team 8) at telephone number (571) 272-1564, or to the Technology Center 2800 Customer Service Office at telephone number (571) 272-1626.


John D. Lee
Primary Patent Examiner
Group Art Unit 2874